PRESS BULLETIN No. 342 *November 6, 1922*

UNIVERSITY OF FLORIDA
AGRICULTURAL EXPERIMENT STATION
GAINESVILLE

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GREEN SPOTTING OF CITRUS FRUIT

By O. F. BURGER
and
E. F. DEBUSK

Green or brownish-green spots appearing on pre-colored citrus fruit is due to the rough handling the fruit receives in being picked and packed.

A peculiar spotting of oranges sent in to the Agricultural Experiment Station this fall (1922) is characterized by a slight sinking of the tissues between the oil glands. These spots are usually green in color and circular in outline. Oil liberated from the oil cells by any cause whatever produces this spotting.

OCCURRENCE AND LOSSES

The greatest trouble occurs on young oranges which have been put thru the coloring process. The young fruit is very tender, and rainy weather seems to aid spotting.

While the fruit is young and tender it is easily bruised in being picked and hauled to the packing house. When the fruit is bruised the oil cells are ruptured and the oil escapes and spreads over the surface of the fruit. The amount of oil liberated depends upon the area of the injured rind. After the oil has escaped and spread, it injures the surface so that when the fruit is put thru the coloring process the injured spot either remains green or turns to a brownish green.

EXPERIMENTS

This complaint had become so general over the state that it became necessary to determine the cause of this injury.

Two lots of fruit were used in experiments for this purpose. The first lot was commercially and the second carefully picked. Twelve individual fruits from each lot were treated in the following manner:

Experiment 1: Twenty-four fruits were bruised with the blunt end of a lead pencil so as to break the oil sacks.

Experiment 2: Some of the green oranges were peeled and the oil squeezed out of the peel and dropped onto 24 oranges.

Experiment 3: Oil of lemon was bought at the drug store and dropped onto 24 oranges.

Experiment 4: Twenty-four oranges were used as a check. They were not treated in any manner.

All the oranges were placed in the coloring room of a commercial packing house, with a carload of fruit which was being colored. They were left in the room for 36 hours. At the end of this period they were taken out and examined.

It was found that in Experiment 1, where the fruit was bruised, the area so injured did not turn yellow but was of a brownish-green color. In Experiment 2, where oil was squeezed out of a green rind and placed on the fruit, the area so treated remained green. In Experiment 3, where the oil of lemon was dropped on the oranges, the treated area was of a brownish-green color. Those used for a check—Experiment 4—were not spotted but were uniformly colored.

Some of the oranges from the commercial picking had a few spots other than where they were treated. The carefully picked and handled oranges—when untreated—had no spots.

The above experiments, therefore, show that it is the liberated oil which causes this peculiar spotting.

DECAY

There has been considerable complaint that the oranges with these spots decayed on the way to market. It has been shown, time and time again, that an injured orange is potentially a decayed orange. Any injury, such as clipper cuts and bruises, breaks the rind and makes an opening for the blue mold fungus. This fungus cannot penetrate an unbroken rind.

An orange picked in fall is tender and its rind is easily injured; hence, much decay may be expected at this season.

REMEDY

Do not pick fruit while it is raining or when the fruit is wet, for this seems to make the green spotting worse.

Handle the fruit with care. Bruising breaks the oil cells, and the liberated oil causes the spots when the fruit is pre-colored. A bruised orange is in great danger of becoming infected with decay fungi, especially the blue mold.

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